Sessional Paper No. 10/52.

THE GAMBIA

REPORT OF THE DEPARTMENT OF DEVELOPMENT AND AGRICULTURE FOR THE PERIOD 1ST JUNE, 1949 TO 31ST MAY, 1951.

25 JUN 1952

BATHURST:
PRINTED BY THE GOVERNMENT PRINTER,
1952.

PRICE 3/-

Digitized by the Internet Archive
in 2025

https://archive.org/details/report-department-agriculture-gambia_1952_10

REPORT OF THE DEPARTMENT OF DEVELOPMENT AND AGRICULTURE FOR THE PERIOD 1ST JUNE, 1949 TO 31ST MAY, 1951.

INTRODUCTION.

This Report covers a period of two years. In the ordinary course of events a Report would have been issued for the year ended 31st May, 1950, but at that juncture the Department was in a transitional state. Since 1946 it had operated as a joint Department with Sierra Leone whose Director, Mr. R. R. Glanville, had functioned also as Agricultural Adviser to the Gambia. During the course of 1950 the decision was made to re-establish an independent Gambia Department and this opportunity is taken to pay tribute to the assistance rendered to the country by Mr. Glanville and to thank him for his valuable services.

STAFF.

2. In the post-war years the staff position in the Colonial Agricultural Service has given cause for much anxiety and agricultural development has been sadly retarded on this score. That more candidates are now coming forward is a source of great satisfaction to all concerned but there is still considerable leeway to be recovered. Events in the Gambia had reduced the strength of the Department to a very low level. During the latter part of 1949 the three remaining Agricultural Officers all left the Colony either on transfer or resignation and when the present Director arrived to take up his appointment in July, 1950, the expatriate staff amounted to a Senior Agricultural Officer, the Stock Farm Manager and the Agricultural Mechanic. The Senior Agricultural Officer proceeded on retirement shortly afterwards.

3. The title of the Director of Agriculture was amended to Director of Development and Agriculture in September, 1950, and the Director holds the further title of Secretary of Development and Natural Resources for the conduct of appropriate Secretariat business. In another capacity he is also the Chairman of the Gambia Oilseeds Marketing Board. With the abandonment of the Department of Supplies and Minor Industries, Fisheries became a section of the new Department.

4. At the time of writing this Report the staff position had materially improved and the rate of recruitment indicated that the remaining vacancies would be filled without undue delay. Two Agricultural Officers on first appointment had recently arrived whilst a third post was filled by the re-employment of a pensioner from the Nigerian Service. The first of six Development Officers had taken up his duties. The Entomologist previously

on the strength of the Medical Department, was on leave prior to transfer to the Department of Development and Agriculture. A further important addition to the establishment was the secondment to the Department by the Agricultural Research Council of Great Britain of a Soil Research Chemist. Shortly before the close of the period under review Government authorised the creation of the post of Deputy Director.

5. The full departmental staff list is shown in Appendix I.

THE AGRICULTURAL SCENE.

6. In the absence of minerals or industries the economy of the Gambia is founded on agriculture, with groundnut production as the predominating feature. Both fishing and animal husbandry offer prospects of substantial development but at present they contribute little to the general wealth and prosperity of the country.

7. The Gambia is not blessed with even moderately favourable agricultural conditions. Rainfall is erratic and varies between wide limits from year to year. Moreover it is entirely confined to the period July—November and for approximately seven consecutive months in each year no rain is experienced. Soil conditions are generally poor and are not conducive to high yields and sustained production, though the heavier soils in the riverine area are well suited to rice production and are being increasingly exploited. The main land surface of the Protectorate however, consists of light sandy soils of low natural fertility and as these are largely incapable of benefiting from the use of chemical fertilizers their capacity to produce useful crops must remain limited until such time as a more enlightened peasantry accepts the need to restore and maintain fertility by adopting improved agricultural methods, particularly the manufacture and use of organic manures.

8. Unfortunately the incentive to an improved agriculture is largely lacking. Except in certain well-defined localities there is no population pressure on the land and shifting cultivation is largely practiced. It is now generally recognised that, with rising populations, this system merely postpones the necessity to accept, sooner or later, a static agriculture in which the maintenance of soil fertility can no longer be evaded but so long as it is able to persist it, renders the task of persuading the people to *farm* their land difficult in the extreme. Group farming may well be the answer.

9. A further factor mitigating against the adoption of new methods is the high prevailing value of groundnuts. When it is realized that against a price of £12 a ton for the 1945/46 season the minimum price guaranteed to growers for the 1951/52 is no less than £40 it is clear that out-dated and ignorant cultivation methods will nevertheless produce very substantial cash returns at current prices

METEOROLOGY.

10. The following rainfall statistics cover all stations at which records are available for a minimum of 5 years:—

Station.	*Rainfall (in inches)*			
	1949	1950	Average	No. of years of records.
Yundum	34.35	65.64	48.29	5
Bathurst (Marine) ...	36.37	N/A	47.15	65
Bathurst (Half Die) ...	36.29	59.54	44.76	8
Brikama	42.37	66.43	49.99	5
Kerewan	36.48	65.51	42.97	20
Bwiam	35.27	59.30	44.92	6
Jenoi	38.54	41.13	39.79	5
Kuntaur	33.98	40.46	37.43	5
Yoroberi Kunda ...	34.80	38.10	37.50	17
Georgetown	35.09	39.44	38.36	28
Cape St. Mary ...	36.92	70.02	46.80	23
Wuli	32.24	41.16	42.13	25

11. Rainfall during 1949 was fairly uniform throughout the Gambia although total falls at each station were well below average. In most places the first rains occurred on 31st May and, with the exception of the period 13th/15th December when many stations recorded more than a third of an inch, the rains ceased at the end of October.

12. 1950 was a phenominal year in the coastal belt where total falls for the year were far above average. In the dry belt, which comprises approximately the MacCarthy Island Division, rains were normal. The first rainfall occurred in most places on the 29th/30th May although some up-river stations experienced rain a few days earlier. The rains persisted into November and ceased on the 7th/8th.

CROP PRODUCTION.

I. Food Crops.

(*a*) Rice.

13. The extension of rice farming which is taking place is one of the most encouraging features of agricultural development in the Gambia. The declining yields of the other grain crops, coupled with the annual food shortage which has been experienced in the pre-harvest period in recent years and which has given rise to the term "hungry season"—a lamentable reflection on local agriculture which all are agreed must be excised as soon as possible—has prompted and stimulated a notable effort to increase the production of rice.

14. Rice is normally grown by the traditional methods employed elsewhere of utilizing the open grassland swamps in the low-lying areas and by impounding rain water on the higher lands. In both cases the work is arduous and the units consequently small but good yields are obtained. A development in the Central Division in bringing mangrove swamps into use is of much interest. The Gambia River, which is tidal throughout the length of the Division, is flanked by belts of mangrove of varying depth. During the period of the rains the pressure of fresh water coming from the catchment area in the hinterland is sufficient to press back the sea water for a considerable distance and in this Diviison for a period of 4—5 months each season—sufficient for a rice crop to be taken—the mangrove plots are indundated with fresh water at each tide. Once the initial labour of removing the mangroves has been done rice can be grown with far less manual effort than elsewhere since the mud flats carry no grass or weeds and no cultivation is necessary either before or after planting takes place. Consequently bigger acreages become possible and fertility is continuously maintained by alluvial deposit. The exploitation of these mangrove areas has become most popular with the local farmers and is being actively encouraged and facilitated.

15. Their difficulty of access and the time spent in proceeding to and from work through the adjoining swamps has hitherto been a limiting factor but this is being overcome by the construction of causeways leading down from the higher land to the mangrove belt. These causeways have given great impetus to this method of rice growing and their number will be increased next season. There is no difficulty in killing the mangroves by fire or ring-barking but a problem which has not yet been solved is to devise a method of removing or disposing of the dead trees. A Development Officer is to be allocated to the solution of this difficulty.

16. No current production statistics are available. Small quantities of rice are sold between Africans but as there is no surplus production there is no organised marketing from which statistics could be derived. Owing to the lack of trained staff no estimating has been possible and all that can be said is that total production is steadily increasing. In the 1949/50 season the crop grew well but the early cessation of the rains depressed yields. Under the reverse circumstance of overflooding in some upper river areas in 1950/51 yields were only fair.

17. Yields recorded by the Nutrition Field Working Party on farms in the Genieri area were as follows, in lbs. of rice per acre:—

	1947.	1948.	1949.
Upland	450	940	298
Swamp	887	1,610	865

(b) Other Grain Crops

18. Cereal production other than rice is mainly concerned with sorghums, millets and Findo (*Digitaria exilis*) which together forms the main food of the population. Sorghum and millet are often grown in combination. Due to low soil fertility average yields are thought to be much below those obtained in other Colonies, but the only current statistics are those recorded by the Nutrition Field Working Party in the Genieri area, as under:—

	In lbs. per acre.		
	1947.	1948.	1949.
Late Millet	150	270	231
Early Millet	80	620	281
Sorghum	—	—	158
Findo	250	52	103

19. Production in 1950 was jeopardised by a severe attack of *Army Worm* which occurred in many districts early in the season shortly after the crops had germinated. New plantings were made wherever possible but seed, particularly of Findo, was in short supply. Conditions during the remainder of the season were favourable and fair harvests were obtained.

20. Maize is grown only as compound crop where it is nourished from domestic refuse and ashes. Under such conditions it is estimated that it yields at the rate of from three to five bags an acre.

(c) Root Crops.

21. Cassava and sweet potatoes have a particular value in a country where a "hungry season" is an annual event, and production is slowly increasing. Cassava planting material is not easy to obtain and the establishment of communal gardens as a source of sets is being considered. Native Authorities in the Upper River Division have made orders requiring each householder to plant a minimum acreage of cassava and it is hoped that the other Divisions will follow this sensible example.

(d) Beans and Peas.

22. The paucity of these crops is almost a feature of agriculture in the Gambia. The number of varieties grown is restricted and the plots small. There is scope for much improvement and it is intended that a wide range of imported types shall be tested on the Department's stations prior to bulking and distribution to the farmers.

(*e*) Other Crops.

23. Small plots of a perennial cotton (probably *G. punctatum*) are a feature of many peasant holdings. The lint has no commercial value and is used for village industries. Tomatoes are widely grown for domestic consumption but are of a poor type and low yield. Citrus is much in evidence and a large number of trees are planted each year but mortality is high, due to neglect.

II. Cash Crops.

(*a*) Groundnuts.

24. The following table shows production in the post-war years, together with the price per ton and the total sum paid out to growers in each season :—

Season.	*Tonnage purchased.*	*Price per ton.*	*Total paid to producers.*
1946/47	56,398	£16	£ 902,368
1947/48	70,490	£20	£1,409,800
1948/49	62,257	£22	£1,369,654
1949/50	62,064	£22	£1,365,408
1950/51	64,416	£29	£1,868,064

25. For geographical reasons the quantity of nuts purchased in any season does not necessarily reflect the acreage uner crop nor does it indicate whether growing conditions were favourable or otherwise. In other words, the market returns are not a true gauge of production. Two factors are involved, both concerned with the fact that, except on the seaboard, the Gambia is entirely surrounded by French territory.

26. Mention has been made in previous Reports of the annual influx of "strange farmers" from neighbouring territories who, by arrangement with individual Gambia farmers, are alloeated blocks of land for the cultivation of groundnuts. In return for the facilities provided they assist their hosts in their farming operations. This is not the place to discuss the merits or demerits of the system but whatever these may be it is clear that, provided the tenant's crops are marketed locally, their contribution to the total crop will be in proportion to their numbers in each season. For no well-defined reason these numbers fluctuate within wide limits and H. R. Jarrett, who enquired into the whole subject of "strange farmers" in 1949 failed even to find correlation between numbers and the price payable for nuts. (See the Geographical Review, Volume XXXIX, No. 4,1949, Pages 649—657). Statistics relating to " Strange Farmers" from 1912 up to the present time are included as Appendix II to this Report.

27. The second factor in the situation is the respective prices which prevail in the Gambia and in adjacent territory in any season. The Gambia has no great width and at no point is any wearisome journey involved to reach a French groundnut market. Consequently any material disparity between the prices offered in the two countries promotes a traffic in groundnuts in the direction of the highest bidder. It is probable that over a period of years the Gambia has not lost more than has been gained from this state of affairs, but the fact that the movement of groundnuts does take place, often in substantial quantities, must be taken into account in any attempt to relate market returns to production.

28. Both the 1949/50 and 1950/51 crops brought out the continuous deterioration that is taking place in quality. The nuts have become very light with a high proportion of empty shells and shrivelled kernels, as evidenced by the shipping stowage rates for the past three years:—

1948/49	115	cubic	feet	to	the	ton.
1949/50	120	,,	,,	,,	,,	,,
1950/51	140	,,	,,	,,	,,	,,

29. It is difficult to arrive at a satisfactory explanation of the declining quality of the groundnut crop and it seems probable that a number of factors are involved. Weather conditions alone cannot carry the blame and in fact these were not unfavourable during the past two seasons. Undoubtedly much of the crop is habitually lifted before the nuts have become fully mature and it is certain that so long as this practice persists high quality kernels will never be attained. It is a difficult problem since once the rains cease the ground hardens quickly and a proportion of the nuts become detached from the plants at the time of harvesting. Earlier planting, with perhaps the introduction of a quicker maturing variety, may provide a solution.

30. Rosette disease has become more pronounced and has been responsible for low yields in many areas. With the increasing staff that is becoming available every effort will be made to persuade the farmers that early planting and close spacing are effective methods of keeping the disease in check.

31. A further possible factor in the situation is the high incidence of the Groundnut Bug, *Aphanus sordidus*, which owing to its habit of piercing the growing nuts to extract the juices, may well be at least partly responsible for the high proportion of shrivelled nuts in the latest crop.

32. Finally, there is the question of seed. Even nuts which have been well grown and are considered good locally, are poor by other standards and there is everything to suggest that the seed stocks have deteriorated and need refreshing. The problem is considered too urgent to permit of extensive trials

to determine the varieties likely to prove suitable and in an attempt to effect an early improvement in the situation approximately 7 tons of seed, comprising three varieties of groundnuts, have been procured from Northern Nigeria for bulking in the 1951/52 season. It is freely admitted that in matters agricultural of this sort " short cuts " cannot be recommended. There is the consideration however, that in many respects conditions in Northern Nigeria are comparable to those of the Gambia and there is consequently a reasonable expectation that the new seed should give satisfactory results under local conditions. It will in any case be under departmental control whilst the bulking process takes place so that it can be discarded in the event of it failing to show any improvement over the local variety. The latter is now so poor however, that cautious optimism over the introduction of Nigeria seed is felt to be justified.

33. Exports during the past five years, together with prices and returns to the producers, are shown in the following table:—

	Quantity.	*Price per ton.*	*Total sum paid to growers.*
1946	1,291 tons	£10 10 0	£13,555
1947	1,159 ,,	£12 0 0	£13,908
1948	1,241 ,,	£18 0 0	£22,338
1949	1,551 ,,	£21 0 0	£32,571
1950	1,804 ,,	£21 10 0	£38,786

34. The quality of the palm kernels exported from the Gambia though improving still leaves much to be desired. Consignments have included an unduly high percentage of shrivelled kernels and foreign matter and quality claims have not been uncommon. The legislation governing this matter has been amended with a view to effecting a rapid improvement. (See also paragraph 75 of this Report).

MARKETING.

35. Controlled and organised marketing is restricted to the two main export crops, groundnuts and palm kernels. Throughout the war years export produce had been handled by the West African Produce Control Board but in 1949 independent territorial Boards were established in the various West African colonies, and the Gambia Oilseeds Marketing Board came into being. It is a statutory body operating under the authority of the Gambia Oilseeds Marketing Board Ordinance, 1948, of which the Director of Development and Agriculture is Chairman. The main function of the Board is to purchase the groundnut and palm kernel crops from the producers and to market them to the best advantage in their interests. To that end a 3—year selling Agreement was made with the Ministry of Food in the United Kingdom, prices being

negotiated annually. Full details of operations during the 1949/50 season are contained in the Board's published Report. The disposal and use of the profits earned by the Board which are not required for marketing purposes are described under the heading " Development " later in this Report.

36. A subsidiary function assumed by the Board in 1951 was responsibility for the provision and distribution of groundnut seed. It is not customary in the Gambia for farmers to select and retain their individual seed requirements which previously were largely obtained on credit from traders and others, often at high rates of interest. The system now introduced by the Board is also a credit system in its early stages but with the essential difference that the interest payments are credited to the individual farmers until such time as the original debt is liquidated. Thereafter the farmer merely deposits his seed requirements with the Board at the time of harvest. It was only possible to introduce the scheme into the Colony and Western Division during 1951, where it operated smoothly and well. It will be extended to cover the remainder of the Protectorate in time for the 1952 distribution.

PESTS AND DISEASES.

37. The Bruchid Beetle, *Caryedon fuscus* Goeze is the major pest of groundnuts and becomes increasing evident in the latter part of each season in the stacks of nuts awaiting shipment. In the seednut stores the ravages of the pest are checked by the use of Gammexane powder but it is not yet clear to what extent this insecticide can safely be used in bulk consignments intended for human and animal consumption.

38. An Entomologist of the West African Pest Infestation Research Unit visited the Gambia in February, 1951, and in his Report drew attention to the unusually high incidence of the Groundnut Bug, *Aphanus sordidus.* Since it is the habit of the bug to pierce the nuts with its proboscis to suck the juices it may well be that it is this pest which was responsible for the high proportion of shrivelled nuts in the 1950/51 crop.

39. Recurrent epidemics of the Elegant Grasshopper, *Zonocerus elegans*, are of such intensity as to constitute a menace to crop production in the areas affected. Defoliation of plants and trees becomes widespread. In other territories these grasshoppers are often controlled by employing juveniles to collect them, but the numbers which emerge in the Gambia render this largely impracticable. This problem will receive the early attention of the Entomologist who, as recorded earlier in this Report, is due to join the Department later in 1951.

40. The 1950/51 crop season was characterized by widespread attacks of Army Worm which virtually obliterated the early grain crops over wide areas. Replanting was necessitated but seed was in short supply and this, coupled with the fact that the harvest was automatically retarded,

nullified to some extent the attempt which had been made to secure a Protectorate self-sufficiency in the matter of foodstuffs for the first time for many years. This problem also will receive the early attention of the Entomologist.

41. Rosette disease continues to take a toll of the groundnut crop and was unusually severe in 1950. This may well be attributed to the fact that the planting of groundnuts was delayed in many districts consequent upon the Army Worm attack on the early grains and the necessity to re-plant before turning to cash crop production. With the increasing staff which is becoming available it is hoped to be able to influence farmers more effectively and to persuade them that early planting and close spacing are measures which confer a considerable degree of immunity or tolerance to rosette attack.

42. This section would not be complete without mention of the campaign undertaken by the Protectorate Administration in 1950/51 to reduce the numbers of baboon, monkeys and pig which are responsible for so much loss of crop each year. Rewards at the rate of 2/-, 1/ and 2/- per tail respectively were offered in late 1950 and by the end of May, 1951 the following had been liquidated:—

Baboon	11,883
Monkey	4,770
Pig	4,710

DEVELOPMENT.

(a) Farmers Fund and Development Committee.

43. There are two pre-requisites for agricultural development namely, staff and funds. Of these the staff situation is easier and it is possible to look forward to a full establishment in the near future. The position as regards finance is likewise healthy. The value of oilseeds in recent years has been such that it has been possible to pay substantial prices to the producers and at the same time to accumulate considerable reserves which, by statute, may be expended only on promoting the welfare and prosperity of the farming community. The first funds of this nature to accrue to the Gambia were a proportionate share of the accumulated profits of the West African Produce Control Board which were divided amongst the four territories when the Control Board ceased operations in 1949. The Gambia received a sum of £1,309,216 which formed the capital of the Gambia Oilseeds Marketing Board and which has itself earned further substantial profits since it came into being so that the total sum surplus to the Board's marketing needs at the date of this Report is in the neighbourhood of £1,850,000. Clearly in considering the welfare and prosperity of the farming community the groundnut industry from which the funds are mainly derived must take pride of place and a sum of £1 million is consequently provisionally reserved to meet any call that may

arise for assisting the industry. There remains therefore, a sum of £850,000 for other measures pertaining to the welfare and prosperity of farmers, to which will shortly be added the surplus profit accruing to the Board from the marketing operations of the 1950/51 season.

44. By a recent amendment to the Oilseeds Marketing Board Ordinance, the funds under discussion are now funded in the Farmers' Fund, expenditure from which is controlled by Legislative Council. A Committee of Executive Council, consisting of the Senior Commissioner as Chairman and the Directors of Medical Services and Development and Agriculture as members, is responsible to the Governor in Council for the formulation of development plans and the submission of schemes and projects to be financed from the Fund. This Committee, known as the Development Committee, is thus seen to be in the satisfactory position of having ample funds with which to discharge its responsibilities.

45. The peculiar conditions appertaining to the Gambia when related to the statutory obligation to restrict expenditure from the Fund to matters benefiting the farming community make it doubly evident that agricultural development will be the main liability that the Fund will be called upon to assume, though other important services are expected to draw on the Fund from time to time.

46. The Development Committee held its first meeting in November, 1950, and the following are the projects approved up to the date of this Report:—

(i) Employment of 6 Development Officers for 5 years. The grant includes housing and the provision of motor vehicles	£43,920
(ii) Coconuts experiments	150
(iii) Employment of pit-sawyers, for timber supplies ...	400
(iv) Construction of access causeways to mangrove swamps, for rice production	8,000
(v) Purchase and operation of tractor and equipment for rice production	6,000
(vi) Purchase of grain mill for village use	200
(vii) Fatoto Rice Scheme	288
(viii) Destruction of baboons and other vermin by payment of rewards	3,500
(ix) Improvement and operation of ferries	9,350
(x) Fish Pond	250
(xi) Sabi Rice Scheme	110
(xii) Water supplies—experimental work	200
(xiii) Group Farming	4,904
(xiv) Rural Development—roads	1,500
TOTAL	£78,772

(*b*) Group Farming.

47. The Nutrition Field Working Party's agricultural project at Genieri has not hitherto been mentioned in the Reports of this Department for the reason that it was undertaken and operated by the Medical Research Council. The demonstration—perhaps experiment would be a better word—was founded on the common-sense assumption that improved nutrition should be sought through improved agriculture and, to that end, two blocks of village land were farmed mechanically. One block was maintained by paid labour and was intended to demonstrate that improved practices, including mechanisation, produced bigger and better crops. The second was worked communally by the villagers except that mechanical operations were carried out by the Unit, the cost to be deducted from the value of the resultant crops. Suffice it to say that, in greater or lesser degree, both blocks failed. Staff troubles and lack of continuity did not help matters and the unhappy presumption that a tractor provides a short cut to prosperity was once again shown to be a fallacy. In the case of the communal farm, it is considered that failure was additionally due to the absence of any individual incentive, a disadvantage which is inherent in any project in which the rewards are shared, irrespective of the effort made by the individuals concerned. Also in this case, the number of people involved was too great for the shareout to be attractive even if good crops had been obtained.

48. A Visiting Party appointed by the London Committee of Management arrived in the Gambia in September, 1950, and proceeded to Genieri for the purpose of reviewing the situation and making proposals for the future. Their Report, which proved acceptable both to the Management Committee and to the Gambia Government recommended, *inter alia*, the development by the Department of grouped farms of individual holdings, with a minimum of mechanisation, and, what is hoped will be only the first of many such farms, is nearly ready for occupation as this report is written.

(*c*) The Colonial Development Corporation.

49. Though the Department has no direct responsibility in the Corporation's undertakings, no Report on agricultural Development would be complete which did not include reference to the fact that the Corporation has shown much interest in the Gambia and has provided substantial monies in the attempt to strengthen the economy of the country and to promote development. It goes without saying that the success of the Corporation's activities is greatly to be desired, not least by the Gambia itself, and the fate which has overtaken the Poultry Scheme at Yundum has been viewed with profound regret. At the end of the period under review the decision had been made to abandon the project as a poultry undertaking but the future of the Farm had not been decided. Some weeks previously the Corporation had convened a Working Party in London, which was attended by representatives of the

Colonial Office and by the Director, to consider the prospect of re-starting useful development at Yundum, but the recommendations of the Working Party were still under consideration.

50. A subsidiary scheme known as the River Farms, the main purpose of which was to produce poultry feed, was also abandoned.

51. The Corporation's third project is a mechanized rice producing scheme in the MacCarthy Island Division. In order to make possible the use of mechanical equipment at all seasons, a high degree of water control is essential and a very substantial system of drainage and irrigation works is nearing completion. The problems to be solved are formidable but, if this pioneer undertaking is successful the prospect is opened of a vast extension of rice growing both in the Gambia and elsewhere.

(*a*) Experimental Stations.

52. Masembe in the Central Division is being developed as the main crop experimental station in the Protectorate. It is at present a modest farm only some 35 acres in extent but, with the consent of the Native Authority, it is intended to take in more land up to a total of 300 acres. This includes provision for maintaining a herd of cattle, without which soil fertility cannot be maintained and good farming practiced under Gambia conditions. No experimental work was undertaken by the Department in 1950/51 as no officer was available for the purpose but it should be mentioned that Dr. R. A. Webb of the Medical Research Council carried out various experiments with trace elements on some of the planted crops. The soil on the farm is typical of the surrounding country-side and as an indication of the low level of fertility the following crop yields are quoted:—

Pigeon Peas	(shelled peas in lbs per acre)	94
Groundnuts	(shelled nuts ,, ,, ,, ,,)	311
Millet	(dried grain ,, ,, ,, ,,)	42
Sorghum	(dried grain ,, ,, ,, ,,)	88
Maize	(dried grain ,, ,, ,, ,,)	50
Velvet Beans	(seed grain ,, ,, ,, ,,)	108
Sunflower	(seed grain ,, ,, ,, ,,)	535

53. In extenuaton of the above results it must be pointed out that, in the absence of an Agricultural Officer, recognised cultural practices were neglected. Plant stands were poor and *Striga* weed much in evidence.

54. The Rice Station at Jenoi is under the charge of the Agricultural Officer at Masembe and serves mainly as a seed farm. The land on which the rice is grown is reclaimed mangrove swamp as described in paragraph 14 of this Report. In the 1950/51 season the rice grew excellently though yields per acre were depressed owing to the failure to secure good plant populations.

55. The Stock Farm at Yoroberi Kunda in the MacCarthy Island Division is being developed as a livestock centre for selective breeding, mainly with a view to increasing milk yields. The process of building up a foundation herd suffered a severe set-back during 1950 due to an outbreak of anthrax disease, which is endemic in the Gambia and which decimated the station herd. The local cattle are mainly ' *N'dama* ' stock and are sturdy beasts which respond to good management. They possess the particular merit of being highly tolerant to trypanomiasis, and, though many of the beasts carry infection, they are able to resist the disease unless overworked or in bad condition.

56. The work of the dairy attached to the farm is recorded later in this Report.

57. A herd of "large-white" pigs is maintained and arrangements are in hand for the experimental curing of bacon and hams.

58. Plans are also being made to establish a Poultry Centre at Yoroberi Kunda.

59. A small farm, to which is attached a dairy, is maintained at Wuli in the Upper River Division and serves mainly as a seed farm. It will also be used for replicating variety trials carried out at the other stations. Subsidiary activities are the production of vegetable seed and the training of cattle to the plough.

(*b*) Agricultural Mechanisation.

60. This is a subject likely to cause considerable heart-burning unless approached with great care. On the technical side there is the fact that the light sandy soils, typical of all the land in the Gambia other than in the riverine area, have very little structure or body even after a long period of fallow. Consequently they crumble easily and pulverize rapidly under the influence of weight such as is brought to bear by the use of mechanized equipment. The extent to which tractors can safely be used without causing permanent damage to such soils, is a matter for research, and in the absence of knowledge on the subject the only sensible course to pursue is to restrict the use of machines to a minimum, employing tractors only to do the tasks which achieve the greatest saving in manual effort and which are the most profitable in terms of £ s. d.

61. Whilst there is no such obvious objection to the use of tractors on the heavier clay soils of the river area, the use of machines is automatically restricted by the fact that the tractors cannot operate once the land has become thoroughly wet. For all practical purposes therefore, the use of machinery in the swamp and semi-swamp areas adjoining the river, is limited to dry-season ploughing.

62. The above considerations concern the technical and practical aspect of mechanisation but it may well be that the economies of the matter will be the deciding factor. Not unnaturally the African peasant is anxious to be relieved of the heavy work of preparing his fields for planting and is clamourous for the use of a tractor. He is prone to overlook however, that the cost of the operation must be borne by the resultant crop and that, particularly under conditions of low fertility and poor yields, it may well be distinctly unprofitable to employ machines. The difficulty of securing an appreciation of the simple economics of mechanisation is magnified by the fact that the largest single item in the cost of tractor work is the hidden one of depreciation, which it is not easy to explain to a community which has hitherto had no concern with such matters other than the necessity periodically to replace worn out hoes.

63. A further aspect of the matter involves the vexed question of African land tenure. It would clearly be impossible to introduce mechanisation into the widely scattered, irregularly shaped, small farms which exist to-day and a first condition of the use of tractors, if the work is to be economically possible, must be the grouping of farms into sizeable units. This raises the whole question of land tenure and is a subject to which the Native Authorities will need to address themselves if mechanization is to play any part whatsoever in agricultural development.

64. From the above paragraphs it will be evident that it is intended to proceed cautiously in introducing mechanisation into African agriculture in the Gambia. A beginning has been made in the Masembe area at the Group Farm at Genieri and also on a block of the village rice lands, the owners of which agreed to group their holdings to form a compact unit. This land has been tractor-ploughed and harrowed, the cost of the work being met by the occupiers at harvest time. Subject to a satisfactory solution of the land tenure problem there is every reason to hope for a marked expansion of contract ploughing which, in the case of rice lands, should result in better crops whilst at the same time relieving the womenfolk of heavy manual work and enabling them to devote more time to their other manifold duties.

65. All tractors and equipment are based on Masembe but new units are on order for the MacCarthy Island and Upper River Divisions.

66. The successful and efficient use of machines is largely dependent upon the provision of an adequate servicing and maintenance organisation and in this respect, the Department is happily possessed of a well equipped and well stocked Workshop at Masembe, in the charge of an expatriate Mechanic. The Workshop was originally erected and established as an adjunct to the Nutrition Field Working Party's operations at Genieri and was financed by a grant from the Colonial Development and Welfare Fund.

(*e*) Extension of Rice Growing.

67. Mention has already been made of the construction of causeways giving access to the mangrove swamps in the Central Division. In the MacCarthy Island and Upper River Divisions there is also much potentially suitable rice land which, however, requires work of a capital nature to be carried out before it can be brought into use. Such works include the construction of canals, drains, bunds, weirs, dams, etc. which are beyond the capacity of the individual farmers who, however, are only too willing to cultivate the land once that it has been made possible. This work, which can only be undertaken in the dry season, must be planned and carried out by qualified persons if costly mistakes and disappointing set-backs are to be avoided and it was unfortunate therefore that the new Agricultural Officers appointed to the two Divisions in question did not arrive in time to plan any major undertakings for achievement in 1951. Nevertheless two small projects involving dam construction and calculated to bring approximately 55 acres of land into use were accomplished in the Upper River Division. The work was financed by grants from the Farmers Fund.

68. In the MacCarthy Island Division the Agricultural Officer assisted in the sitting of new rice fields for the people whose land was absorbed into the Colonial Development Corporation's Rice Project.

(*d*) Dairy Produce.

69. The Department operates dairies at Wuli and Yoroberi Kunda in the Upper River and MacCarthy Island Divisions respectively. In both cases supplies are drawn mainly from village herds in the surrounding country-side though the station herd at Yoroberi Kunda contributes to the dairy at that place. The cattle owners bring their milk each day to appointed centres where they are met by dairy hands provided with portable separators. The cream is purchased for cash and the skim milk returned to the owners for consumption. The price of cream was recently raised from 9d. to 1/- per lb.

70. The following table shows the quantities of cream purchased and butter produced :—

Yoroberi Kunda	*Cream purchased*	*Butter produced.*
1949	16,185 lbs.	8,359 lbs.
1950	20,671 lbs.	6,882 lbs.
1951 (to 31/5/51)	4,454 lbs.	2,288 lbs.
Wuli.		
1949 (from 1/8/51)	No record	306 lbs.
1950	871 lbs.	435 lbs.
1951 (to 31/5/51)	854 lbs.	422 lbs.

71. The bulk of the butter is despatched to Bathurst by river steamer but, due to faulty refrigeration either on the steamer or at the dairies, production has been interrupted on occasion at both centres and for varying periods and the cream purchased has had to be converted into clarified butter fat. As this has to be sold in competition with tinned cooking fats a loss is incurred on all sales. The purchase of cream must continue uninterruptedly however, if the goodwill and interest of the cattle owners is to be kept.

72. On the other hand, the manufacture of butter is at last beginning to show a small profit. It is sold ex dairy at 3/1d. per lb. and retails at 4/- per lb. in Bathurst. There is little doubt that owing to shortage of staff in the past supervision has not been adequate and the economics of the industry left much to be desired. For instance, the present ratio between cream and butter is 1.77 as against 3.0, until proper supervision become available at the beginning of this year. At the same time also quality has greatly improved and the prospects for this small industry are now favourable.

(*e*) Training of African Staff.

73. The absence of any facilities for the training of African staff in agriculture has been a permanent handicap to the work of the Department in the past. It is consequently satisfactory to record that arrangements have been made for four Gambia candidates to attend each course given at the Njala Training College in Sierra Leone. The course, which starts in January every other year lasts for three years and is designed primarily to meet departmental needs.

(*f*) Botanical Gardens.

74. These gardens, which are situated at Cape St. Mary, the Headquarters of the Department, have been maintained in fair condition but have lacked adequate supervision. The nurseries have continued to provide ornamental shrubs, citrus and other fruit trees for sale and distribution. A small herd of cattle is maintained for manure making. The sale of vegetable seeds has been discontinued as these are again available in the Stores.

(*g*) The Abuko Sub-Station.

75. This Sub-station in the Colony area is mainly devoted to oil palms. It is considered probable that the Gambia is beyond the northern limit at which oil palms will flourish and the fact that the local palm has a very thin pericarp and consequently yields almost no red palm oil, strongly suggests that all is not well. The purpose of the Abuko plantation is to ascertain whether the pericarp factor is climatic or varietal and it is therefore divided into two blocks one of which was planted with local palms in 1946 whilst the other was planted a year later with Angola seed obtained from Sierra Leone. The trees are not yet in bearing.

(*h*) Fisheries.

76. In the absence of minerals, fishing and agriculture are the only natural resources on which to base the prosperity of the country and it is the policy of Government to sponsor the development of fishing activities by all possible means. At the present time, very large numbers of fish are taken annually from territorial waters and from the Gambia River itself mainly, it must be stated, by Senegalese Fishermen. Moreover, except in the Bathurst area, the catches are largely marketed in adjacent French territory. It is a remarkable fact that, despite the abundance of fish in Gambian waters, the disinterestedness of the bulk of the population in fishing activity results in a pronounced shortage in the majority of villages in the Protectorate. Fish is a popular item of diet which the people buy readily whenever it is available, so that their marked disinclination to catch it virtually at their doorstep—is all the more curious. It follows that one of the primary tasks of the Fisheries Section of the Department is to stimulate an interest in fishing and this is being done by giving assistance in providing gear and by demonstrating simple and effective techniques. Amongst the latter, simple wire fish traps, easy and inexpensive to construct, offer much promise. It is disappointing to have to record that at the time of writing this Report the use of fish traps in the area of the Estuary had been brought to a standstill by their wholesale theft. It is thought that the attraction may not be the traps themselves but their securing and buoying ropes.

77. A further set-back has been the constant breakdown of the fishing vessel "*Golhdor*" which, during the past year has spent an average of seven days in dockyard hands for every days' fishing. It is hoped that the new engine now being fitted may finally put an end to these troubles.

78. The full report of the Fisheries Officer is attached as Appendix III.

LEGISLATION.

79. The following Ordinances have been enacted:—

(*a*) The Gambia Oilseeds Marketing Board (Amendment)

Ordinance, 1951.

This legislation provides for the establishment of the Farmers' Fund referred to in paragraph 43 to 46 of this Report and provides for control of expenditure from the Fund. The Ordinance also increases the number of producer's representatives on the Board from three to four.

(*b*) The Adulteration of Produce Ordinance, 1951.

This Ordinance replaces earlier legislation on the same subject which had become largely ineffective through changed conditions. It provides that all members of the Department and all employees of the Marketing Board may be appointed Inspectors and gives such Inspectors powers to ensure that groundnuts and palm kernels shall be marketed in clean condition, reasonably free from extraneous matter. The Ordinance is very similar to the legislation on the subject in other colonies.

VISITORS.

80. The following are some of the recent visitors to the Gambia who were especially concerned with the work of the Department:—

Mr. G. W. Nye	—	Deputy Agricultural Adviser to the Secretary of State.
Dr. A. Topping	—	Dean of the London School of Hygiene.
Dr. R. Lewthwaite	—	Director of Colonial Medical Research.

(The above visited the Gambia as representatives of the London Committee of Management of the Nutrition Field Working Party).

Mr. D. E. Faulkner	—	Deputy Director of Field Services. Kenya.
Mr. S. O. Brown	—	Deputy Director of Agriculture, Nigeria.

(The above were concerned with a Survey of cattle breeding policy in British Colonial territories in Africa).

Mr. K. G. Smith	—	Entomologist. West African Pest Infestation Research Unit.
T. B. Williamson	—	Colonial Office.
Mr. W. Brawley	—	Imperial Chemical Industries Ltd.,
Dr. C. F. Hickling	—	Fisheries Adviser to the Secretary of State.
Dr. Greene	—	Rothamstead Experimental Station.

ACKNOWLEDGEMENTS.

81. I wish to record most gratefully the valuable assistance and encouragement I have received from everyone since I arrived in the Gambia. The fortunes of the Department had reached a low ebb and it has been my task virtually to re-build an organisation capable of tackling the heavy responsibility of developing the natural resources on which the country's existence and prosperity are founded. In doing so I have been privileged to receive the fullest support and encouragement of everyone from His Excellency the Governor downwards. I am particularly grateful to Standing Finance Committee for its sympathetic and helpful understanding, without which nothing effective could have been started.

82. I also wish to acknowledge the good work done by the staff of the Department and on their behalf as well as my own to thank the Officers of the Protectorate Administration, the Director of Veterinary Services and the Forestry Adviser for their unfailing co-operation and helpfulness.

C. B. GARNETT,
Director of Development and Agriculture.

Cape St. Mary,

27th June, 1951.

APPENDIX I.

STAFF LIST.

(As at 31st May, 1951.)

Director:—	—	C. B. Garnett, M.A.
Deputy Director:—	—	Vacant
Agricultural Officers (4):—	—	R. B. Shorter (Temporary)
		H. Bailey
		R. S. Liney
		(One vacancy)
Entomologist:—	—	R. W. H. Campbell
Soil Research Chemist:—	—	R. A. Webb, Ph. D.
Stock Farm Manager:—	—	A. G. P. Drummond
Agricultural Mechanic:—	—	E. N. MacGregor
Development Officers (6):—	—	M. L. Bellow
		(5 vacancies)
Fisheries Officer:—		R. J. Midwinter
Master Fisherman:—		W. Brown
Administrative Assistant:—	—	C. I. Jagne
Clerk (7):—	—	E. A. Monday
		(Miss) M. R. Riley
		J. E. Sarr
		O. B. Joof
		S. A. N'Jie
		I. N. Stapleton
		L. M. Faal
Agricultural Assistant:—		T. T. Morrison
		K. B. Jammeh
		M. B. Jagne
		J. E. M. Lusack
		R. J. C. Lloyd
		J. Y. Jawo
		S. J. Samateh
		M. L. Saho
		S. M. N'Jie

STAFF LIST—*contd.*

Agricultural Instructors:—	—	K. F. Dampha
		G. M. O. Lusack
		Alkali Kinti
		M. S. N'Dow
		B. L. Hamilton
		B. A. Cham
		J. N. Dunn
		S. I. Jallow
		Patrick Parker
		D. W. Forbes
Agricultural Learners:—	—	Kansu Jadama
		Musa Sanneh
		Jallow Sanneh
		M. S. Jeng
		Musa Touray.

APPENDIX II.

STRANGE FARMERS

Year	Strange Farmers Numbers.	Groundnuts (Tons) Exports.	Price to Farmers. Per ton. £ s. d.
1912	6,525	64,196	No record
1913	9,940	67,404	No record
1914	14,908	66,885	No record
1915	32,220	96,151	No record
1916	9,315	46,366	No record
1917	20,727	74,300	No record
1918	20,509	56,490	No record
1919	22,440	70,290	No record
1920	24,150	84,037	No record
1921	22,048	58,273	No record
1922	20,566	62,978	No record
1923	17,3[illegible]	62,564	9 0 0
1924	14,188	58,980	10 0 0
1925	14,652	46,583	9 10 0
1926	13,555	57,344	9 0 0
1927	17,237	65,107	10 0 0
1928	20,640	74,442	12 0 0
1929	18,874	56,355	7 10 0
1930	16,592	74,761	4 17 6 to 8 0 0
1931	9,736	66,811	3 10 0
1932	16,513	37,315	5 0 0
1933	14,537	67,370	4 0 0
1934	8,332	71,919	3 10 0
1935	13,341	44,712	7 0 0
1936	9,754	49,104	6 6 8
1937	13,479	66,566	3 13 4
1938	9,195	46,651	3 3 4
1939	4,643	48,925	4 10 0
1940	4,890	39,188	4 0 0
1941	3,741	40,318	4 0 0
1942	2,585	15,651	5 10 0
1943	5,995	17,756	8 0 0
1944	10,793	27,538	12 0 0
1945	19,979	39,508	12 0 0
1946	13,263	37,772	16 0 0
1947	14,662	54,245	20 0 0
1948	10,863	68,934	22 0 0
1949	10,981	61,106	22 0 0
1950	16,512	58,791	29 0 0

NOTE:—Groundnuts are exported in the year following that in which they were grown.

APPENDIX III.

FISHERIES SECTION: ANNUAL REPORT.

(Two years ended May, 1951.)

I. ORGANISATION.

Up to the time of closing of the Department of Supplies and Minor Industries on the 31st of January, 1950, Fisheries had been part of that Department. The Assistant Controller of Supplies, who had completed the Colonial Fisheries Officers Course in the United Kingdom in 1947/48, and the Master Fisherman, had been employed almost exclusively in Supplies Department activities.

2. In February 1950 the old Public Works Department Garage was made available for the Fisheries Section stores, and an office was loaned by the Medical Officer of Health pending alterations to the stores. The alterations completed we took over the present offices in December, 1950. This meant that for the first time we had offices, stores and net-loft in one block.

3. The staff at this time was:

Fisheries Officer	R. J. Midwinter
Master Fisherman	W. Brown
Clerk/Storekeeper	J. Kofie-Scott
Messenger	M. Camara
Four daily paid fishermen	

Mr. J. Kofie-Scott retired in January, 1951 and his place was taken by Mr. S. A. N'Jie of the Agricultural Department. Mr. N'Jie was transferred in April, 1951 and the post of Clerk/Storekeeper was filled by the appointment of Mr. L. M. Faal.

4. The Master Fisherman was on leave from 1st December, 1949 to 4th April, 1950.

5. The Fisheries Officer was on leave from 7th May, 1950 to 16th November, 1950.

6. Fisheries became a Section of the Department of Development and Agriculture in July, 1950.

II. MOTOR FISHING VESSEL.

7. The Motor Fishing Vessel "*True Love*" reached Bathurst from Britain on the 29th of March, 1950. She was renamed "*Gallidor.*"
Details are:—

Built	1939
Length	31′ 5″
Beam	10′ 5″
Draft	3′ 5″

Engine Lister, 2 cylinder diesel.

Gear purchased with the vessel was as follow:—

10 Herring Nets
8 Mackerel Nets
4 Otter Trawls
2 Clam Dredges
70 score Long Lines
6 sets Mackerel Flies
60 Lobster Creels.

Since her arrival the "*Gallidor*" has made only 43 trips (including trials). This due to winch and engine troubles. After the engine finally ceased working on the 21st March, 1951 it was decided to replace it with a Kelvin J3, as used in the Gambia Marine launches. This work, undertaken by the Marine Branch of the Public Works Department will be completed soon.

III. VISITS.

8. Dr. C. F. Hickling, Fisheries Adviser, visited the Gambia and stayed from 25th November until 8th December, 1950. During his stay he visited the Gambia Field Working Party at Genieri and he also made a short visit to the Bintang Creek. Mr. A. Taylor, Director of the West African Fisheries Research Institute, accompanied Dr. Hickling for part of the visit.

IV. FISHING GEAR.

9. All gear has had too little use for any valuable information to be accumulated but the following are indications:

Trawling. (Otter Trawl of 30′ sole rope). The two best efforts have been 94 lbs. of fish for 1½ hours trawling and 190 lbs. of fish for two hours trawling.

Multiple Trolling "*Gallidor*" was rigged for Multiple Trolling in December, 1950 but has not had continuous trials. The largest fish caught by this method was a 21 lb. barracuta. There was also a Jack of 18 lb.

Fish Traps. These were first used in December, 1950 and the initial efforts were not very encouraging. By searching for good grounds we have been able to improve catches considerably. In one period of 3 weeks, at Half-Die, the average per trap per lift was 20 lbs. of fish, while in an area about ½ mile south of No. 1 Buoy the average over a period of a month was 26½ lbs. per trap per lift. The best haul in one day was 430 lbs. of prime fish from 15 traps. It was hoped to build up the total number of traps in the sea to 80—in four batches of 20—and to lift 20 per day, but thefts, either of the complete traps, or may be of the hauling ropes only, crippled the campaign. New traps are being made to replace those lost.

Crawfish Drums. These have been tried at several points off Tanji and off Cape St. Mary. So far they have not caught any crawfish.

Drift Nets. The herring nets and mackerel nets purchased with "*Gallidor*," together with 6 nets purchased by the Protectorate Administration, to a specification drawn up by the Master Fisherman, have been tried for Bonga. In July, 1950, in the Bintang Creek at Kalaji, two of these nets produced 50lbs. of Bonga in 1½ hours fishing time. In December, 1950, off Dog Island, 6 nets produced 181 lbs. in 2 hours. These were the only occasions when these nets were used with Bonga plentiful.

Long Lines. So far, Long Lines have been used only as training for the "*Gallidor*" crew, but the indications have been good. Stronger lines are being made in readiness for use in the "*Gallidor*" when she is fishing regularly.

V. PROTECTORATE.

10. *Gambia Field Working Party.* A preliminary programme of fisheries work has been drawn up. This covers the use of Long Lines, Staked Nets, Fish Traps and the erection of a fish weir after the style of the Kenya " Osio ". Traps first introduced to Genieri in December, 1950 have been well received by people of the area, and more have been requested and are to be built locally. The Staked Nets are being made at present in the Fisheries Section store.

11. *Jenoi.* An experimental Fish Pond is under construction at Jenoi.

12. *Bansang.* A Fish Trap has been supplied for use under the care of the Medical Officer. No reports as to its effectiveness have been received.

13. *Basse.* 2 Fish Traps have been supplied to the Agricultural Officer.

14. *Bwiam and Bintang.* The Fisheries Officer, Master Fisherman and three of the "*Gallidor*" fishermen spent five days in the Bintang Creek (29th January to 2nd February, 1951) in the trial of Bonga nets and Long Lines used from a small unpowered craft. Bonga was not plentiful at the time and no attempt was made to interest the local fishermen in the gear taken.

15. *Balingho.* In March, 1951 the Fisheries Officer and three of the "*Gallidor*" fishermen spent four days at Balingho during which the Bonga nets and Long Lines were used from a small ships boat. There was little Bonga about. A Long Line has been in use at Balingho for four years with success but there has been no attempt on the part of the local fishermen to copy it.

VI. FISH SOUNDS.

16. The purchase of Fish Sounds has continued. An earlier shipment, by nature of a trial, resulted in favourable comment on the part of the United Kingdom buyers.

VII. COLONIAL DEVELOPMENT CORPORATION— ATLANTIC FISHERIES.

17. The period under review has seen the start of the Colonial Development Corporation's activity in the Gambia.

VIII. BATHURST GUILD OF FISHERMEN.

18. Papers have been lodged for the registration of the Bathurst Guild of Fishermen, a guild on the lines of a Friendly Society. It is hoped that this will prove of great benefit to the fishing fraternity of Bathurst and its surroundings.

IX. FISHERIES' STATISTICS.

19. Although it is too early to tabulate any, a start has been made in the organised collection of information. This includes a daily record of fish landed at Bathurst, daily record of retail prices of fish in the Bathurst market, meteorological information, seasonal distribution and the compilation of a "Mandinka" glossary of fishes.

X. PRISON FISHERY.

20. A Fish Trap and a Long Line have been supplied to the Prison. An immediate report is to the effect that the Long Line has greatly increased the quantity of fish for the prisoner's diet.

(*Sgd.*) R. J. MIDWINTER,
Fisheries Officer.

BATHURST,
15th June, 1951.